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ART UNIT	PAPER NUMBER
2621	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/606,731	SOROUSHIAN, KOUROSH	
	Examiner	Art Unit	
	JEREMAIAH C. HUBER	2621	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *17 June 2010*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-6,9-16 and 19-25* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-6,9-16,19-22 and 25* is/are rejected.

7)☒ Claim(s) *23 and 24* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *23 June 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

Claim 24 is objected to because of the following informalities: The claim recites "... each macroblock row remains undecoded from reception ...". In the context of the claim, which defines the bounds for which the data must not be decoded, the term 'undecoded' represents a double negative, of the phrase 'remains encoded' as recited in claim 23. In order to avoid confusion the examiner recommends amending claim 24 to use the phrase 'remains encoded' as in claim 23. Appropriate correction is required.

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claim 10 is rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. The claim relates to a pre-decoder apparatus comprised of various means. The specification discloses that such means may comprise either hardware or software components (Spec .page 12 line 15 to page 13 line 18). Thus the claims may be properly construed as software or computer programs which are not claimed as being recorded on a non-transitory computer readable medium. Therefore the claims are non-statutory. See MPEP 2106.01.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-6, 9-16 and 19-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gryskiewicz et al (6392712, hereafter Gry), Boyce et al (5592299) and Kim in view of the applicant's admitted prior art (hereafter AAPA).

In regard to claim 1 Gry discloses a method and apparatus for processing a bitstream including:

receiving a first bitstream comprised of frames (Gry Fig. 1 102, 104, 120 and col. 1 lines 21-22), generating first and second field pictures, representing the data in the frame pictures, in response to the input bitstream and (Gry col. 3 lines 18-38), and generating a second bitsream including the first and second field pictures (Gry Fig. 2 note to transmitter 106 and col. 3 lines 38-44); and

first and second field buffers (Gry fig. 1 note 125a-b).

It is noted that Gry does not disclose details of alternating macroblock rows. However, Boyce discloses a method and apparatus for processing a bitstream (Boyce Figs. 1E, 2 and col. 1 line 46 col. 2 line 50) including:

receiving a first bitstream comprised of encoded frame pictures, at an input of a pre-decoder, including intra coded frames, with alternating macroblock rows, with each row containing a plurality of vertical lines from a single respective field of a frame picture encoded in the first encoded bitstream (Boyce Figs. 1E and 2 and col. 2 lines 41-50 and col. 5 lines 37-47 note field DCT coded macroblock in Fig. 1E each block 22-25 comprises a plurality of vertical lines, e.g. 8, 8 pixel vertical lines, from a single field, also note col. 5 lines 50-60 reduction circuit receives video frames, further MPEG digital video includes intra coded frames, and frame headers, lastly note the process and apparatus of Boyce operate on an MPEG encoded bitstream, thus the invention of Boyce is a 'pre-decoder');

generating, in the pre-decoder, first and second field pictures in response to the bitstream (Boyce Figs. 2 and 3 and col. 7 lines 5-15, note first and second fields are generated in response to received bitstream), wherein the first field picture comprises macroblock rows containing the data for the plurality of vertical lines from a first field of the frame picture wherein the encoded vertical data of altering macroblock rows is a copy of the encoded data for the plurality of vertical lines contained in a corresponding macroblock row (Boyce Fig. 3 and col. 7 line 51 to col. 8 line 35 note field picture is composed of alternating block rows of the frame picture, also note col. 8 lines 30-35 each block, i.e. a and b, may be placed into a field macroblock with all DC and AC coefficients, thus the encoded vertical lines corresponding to a single field are copied).

generating a second encoded bitstream, using the pre-decoder, including the first and second field pictures such that the second bitstream is decodable as interlaced

field pictures using an MPEG-2 compliant decoder (Boyce col. 6 lines 61-63 note output is MPEG compliant pairs of field pictures further note that MPEG is a compressed stream format). Boyce also discloses the ability to generate either upper or lower (odd or even) fields (Boyce Fig. 3A&B) and generating picture and slice headers to maintain MPEG compliance (Boyce col. 11 line 56 to col. 12 line 7 note MPEG-2 compliance requires an indication of top or bottom field in a field header).

Boyce further discloses that generated bitstream is used for playback, or display (Boyce col. 5 lines 55-60). Thus, Boyce inherently discloses presenting the second encoded bitstream to input of a standard MPEG-2 compliant decoder, as the encoded video conforms with MPEG-2 standards and must be decoded by an MPEG-2 compliant decoder in order to be viewable for display.

It is further noted that neither Gry nor Boyce discloses copying and modifying header information. However Kim discloses a an MPEG-2 format conversion method in which various headers are modified and copied into new bitstreams (Kim Fig. 1 and col. 5 line 44 to col. 6 line 63).

Therefore, it was well known in the art at the time of the invention to generate first and second fields containing video data from frames as disclosed by Gry. It was also well known in the art at the time of the invention to generate single encoded fields in response to encoded frames where each field is comprised of macroblock rows containing data of the original frame, and output a second bitstream comprised of encoded field pictures that is decodable using an MPEG-2 complaint decoder as disclosed by Boyce. It was further well known to copy and modify various headers into

new bitstreams during format conversion as disclosed by Kim. The examiner does not believe that one of ordinary skill in the art would have had any difficulty in combining the generation of two fields using first and second field buffers as taught by Gry with the compressed frame to field conversion method of Boyce and the copying and modification of headers as taught by Kim. Therefore the applicant's invention merely represents a combination of prior art elements according to known methods to achieve predicable results. In such a combination all inventions would perform as they did separately. Namely, the method Boyce would continue to operate to generate encoded fields from encoded frames, the method of Gry would continue to generate two data fields using first and second field buffers in response to input frames, and the method of Kim would continue to copy and modify header data during format conversion. One of ordinary skill in the art would further have found such results to be predictable because generating two data fields in response to frames was well known as taught by Gry. Boyce teaches a method of generating a single data field from a frame. Kim teaches header copying and modification during format conversion. Therefore the result of generating two fields from a frame using the method of Boyce, and deriving the headers of those fields via copying and modification as taught by Kim would have been predictable.

Boyce further discloses the ability to operate on bitstreams in the MPEG-2 format, and to generate an output encoded as intra-only pictures (Boyce col. 5 lines 38-49 and col. 6 lines 27-37 note col. 6 lines 33-37 note output may be selected to comprise first and second output fields that are I fields). It is noted that neither Gry,

Boyce nor Kim explicitly disclose receiving an intra-only bitstream. However, the AAPA discloses that an intra-only in bitstream structure was commonly known in the art at the time of the invention (Spec. p. 3 lines 9-20 note bitstream can be formed solely of intra pictures). It is therefore considered obvious that one of ordinary skill in the art would recognize the advantage of applying an intra-only input bitstream to the invention of Gry, Boyce and Kim in order eliminate processing time required to converting fields into intra coded pictures as suggested by Boyce (Boyce col. 6 lines 30-32 note fields are made to be intra coded). One would further expect the invention of Gry, Boyce and Kim to operate on such a bitstream structure because it is part of the MPEG-2 standard.

Alternatively if one were to assume in arguendo, that Boyce did not disclose copying the vertical lines of macroblock rows as claimed, the claim would still be obvious in view of the AAPA. Boyce generally discloses an image structure where macroblocks may be either a frame DCT or field DCT type, where a frame DCT type comprises interlaced blocks, whereas a field DCT type comprises 8x8 blocks corresponding to individual fields. The AAPA discloses a further frame structure in the MPEG-2 standard wherein larger 16x16 macroblocks may correspond to individual fields as opposed to the blocks of Boyce. It would therefore be considered obvious that one of ordinary skill in the art at the time of the invention would apply the field generation method of Gry in view of Boyce to the 16x16 field macroblock structure disclosed by the AAPA in order to gain compliance with a greater variety of image structures. Incorporation of the AAPA structure would further reduce the number of frame to field calculations necessary because by operating on larger image blocks the

number of operations assigning a block to a particular field would be reduced by a factor of 4.

In regard to claims 2-3 refer to the statements made in the rejection of claim 1 above. Gry further discloses first and second field buffers (Gry fig. 1 note 125a-b). Boyce further discloses selecting alternate macroblock rows to generate a field (Boyce Fig. 3 and col. 8 lines 1-35). Boyce further discloses generating picture and slice headers to maintain MPEG compliance (Boyce col. 11 line 56 to col. 12 line 7 note MPEG compliance requires an indication of top or bottom field in a field header). It is further noted that neither Gry nor Boyce discloses copying and modifying header information. However Kim discloses a an MPEG format conversion method in which various headers are modified and copied into new bitstreams as new headers (Kim Fig. 1 and col. 5 line 44 to col. 6 line 63). It is therefore considered obvious to include header copying and modification as taught by Kim in the invention of Gry and Boyce in order to speed processing.

In regard to claim 4 refer to the statements made in the rejection of claims 2-3 above. Boyce further discloses adjusting slice numbers (Boyce col. 11 lines 60 to 67 note correct slice_vertical_position values).

In regard to claim 5-6 refer to the statements made in the rejection of claim 1 above. Gry further discloses writing first and second fields consecutively into a second bitstream (Gry Fig. 2 note odd and even fields).

In regard to claim 9 refer to the statements made in the rejection of claim 7 above. Gry further discloses presenting field lines on a display in response to an input

bitstream (Gry col. 9 lines 11-17), and further that the display can be a television (Gry col. 4 lines 1-3). Kim further discloses that decoding encoded bitstreams for display was well known in the art at the time of the invention (Kim generally col. 1 line 32 to col. 2 line 62).

In regard to claims 10, 11, 19 and 20 refer to the statements made in the rejection of claims 1-9 above. In particular regard to claim 11 Gry and Boyce both disclose a first circuit (Gry Fig. 1 note system memory 104; Boyce Fig. 2 note data reduction circuit 100). As noted in the rejection of claim 1 above Boyce further inherently discloses an MPEG-2 decoder. It is noted that neither Gry, Boyce, Kim nor the AAPA explicitly disclose implementing such a decoder in a circuit. However, the examiner takes official notice that it was common and notoriously well known in the art to implement an MPEG-2 decoder in a circuit. It is therefore considered obvious that one of ordinary skill in the art would recognize the advantage of realizing the inherent decoder of Boyce in a circuit in order to gain the advantage of a machine implemented decoder. In response to the applicant's challenge of the above official notice note Artieri (5579052) which discloses an MPEG-2 decoder implemented in a circuit (Artieri Fig. 1 and col. 1 lines 11-24).

In claims 12-16 refer to the statements made in the rejection of claims 1-9 above. In particular regard to claim 12, Gry further discloses one or more memory devices (Gry Fig. 1 note buffers 126a and 126b), Boyce further discloses an output circuit (Boyce Fig. 2 note frame/field conversion circuit 116), Kim further discloses a transform circuit (Kim Fig. 1).

In regard to claims 21-22 refer to the statements made in the rejection of claim 16 above. Kim further discloses writing a sequence header from a first bit stream into a second bitstream, and further discloses modifying portions of the sequence header prior to writing (Kim fig. 1 and col. 5 line 44 to col. 6 line 63 particularly col. 6 lines 12-29).

Claim 25 is rejected under 35 U.S.C. 103(a) as being unpatentable over Gry, Boyce and Kim in view of the AAPA and Yonemitsu et al (5461420).

In regard to claim 25 it is noted that neither Gry, Boyce, Kim nor the AAPA expressly disclose modifying a picture extension portion of the first and second field headers to indicate top and bottom fields respectively. However, at the time of the invention the MPEG-2 standard operated on by the invention of Gry in view of Boyce and Kim and in further view of the AAPA was known to include a picture coding extension header which includes a picture structure syntax element that is used to indicate whether a pictures is encoded as a field, a top field or a bottom field (Yonemitsu generally col. 17 line 46 to col. 19 line 31 note tables 6, 8 and particularly col. 19 lines 18-23, further note col. 14 lines 32-36 syntax described is the MPEG-2 syntax). It is therefore considered obvious that one of ordinary skill in the art at the time of the invention would include a modification of the picture structure syntax in the picture coding instruction disclosed by Yonemitsu in order to indicate top and bottom fields respectively as part of the header modification taught by Boyce and Kim (Boyce col. 11 line 46 to col. 12 line 7; Kim Fig. 1 and col. 5 line 44 to col. 6 line 63) in order to reflect

the field structure of the generated bitstream as suggested by Boyce (Boyce col. 12 lines 1-3).

Allowable Subject Matter

Claims 23 and 24 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims 23 and 24 require an intra only pre-decoding process that converts intra-only input frames to intra-only output fields by copying macroblock rows into alternating field buffers and copying and modifying frame header data to form two field headers then outputting the content of the field buffers as an intra-only field encoded bitstream wherein the encoded data for the plurality of vertical lines in macroblock rows remains encoded throughout the frame to field conversion process.

The closest art is Gry in view of Boyce, Kim and the AAPA, which discloses a process of converting frames to fields using two field buffers by alternating block rows and modifying header data. However, the combination of Gry, Boyce, Kim and the AAPA require performing certain decoding steps on the encoded data during the frame to field conversion.

Response to Arguments

Applicant's arguments filed 6/17/2010 have been fully considered but they are not persuasive.

In response to the applicants arguments made with respect to claim 1 the applicant asserts that Gry, Boyce and Kim for a lack of teaching of an input signal to a pre-decoder that is required to be an intra-only frame picture. The examiner notes the deficiency, however the previous rejection cited the AAPA in order to supply this teaching. The applicant has not argued that the AAPA fails to disclose intra-only bitstreams or assert a lack of obviousness in combining the AAPA with the teachings of Gry, Boyce and Kim. Therefore the applicants arguments are not persuasive.

Further applicant directs several arguments to a rejection based on the inherency of an intra-only MPEG stream which appeared in earlier office actions. However, the present rejection relies upon the applicant's admitted prior art for teaching intra-only MPEG streams, and does not rely upon inherency. Therefore these arguments (See Remarks page 17 line 23 – page 18 line 13 and page 21 lines 3-16) are not persuasive.

The applicant further asserts that neither Gry, Boyce nor Kim discloses that the output of the pre-decoder is an intra-only field picture particularly noting that the output field pictures of Boyce may be intra or predicatively coded discloses. The examiner must respectfully disagree. Boyce discloses two options for coding output fields. A first, intra-only, option codes first and second output fields as I, or intra fields. A second, mixed, option codes the first field as an I field and the second as a P field (Boyce col. 6 lines 33-37). Boyce also further elaborates the details of the second option (Boyce col. 6

lines 38-42). The first, intra-only, option of Boyce corresponds to the claimed an intra-only field encoded output bitstream. That Boyce discloses other possible output formats does not make the claim allowable over Boyce.

In response to the applicant's arguments made in regard to changing the coding, amount of video data, and the unsuitability of the references after modification, the applicant's arguments are substantially identical to the arguments on page 17 line 8 – page 19 line 20 of the Remarks filed Dec. 1, 2009. These arguments were responded to in the previous Office Action dated March, 19, 2010 on pages 9-10 and will not be repeated here for brevity.

The applicant further challenges of the inherency of and MPEG-2 standard compliant decoder in Boyce in order to achieve later viewing of the encoded video. Boyce discloses receiving and outputting streams incompliance with the MPEG-2 standard (Boyce col. 5 lines 37-49 note input stream is MPEG-2, also note col. 6 lines 27-32 MPEG compliance is maintained in output bitstream). Boyce further discloses that the output bitstream is used for display to a viewer (Boyce col. lines 55-60 note output stream is read during tick play, also note col. 1 lines 28-39 the purpose of the trick play track is to produce recognizable images during trick play). Video data, in its encoded form, does not produce a recognizable image when presented to a display and thus must be decoded. At least one reason for this is that encoded video, such as the MPEG video of Boyce is represented as discrete cosign transform coefficients (DCT) (Boyce col. 5 lines 37-49 note macroblocks include DCT coefficients) which do not present recognizable images when presented to a display. This property of DCT data can be

seen in "2D DCT and JPEG" which shows an image of a flower bouquet along side a corresponding DCT representation in which the image of the bouquet is not recognizable (Also see MPEP 2131.01(III) and 2124). Therefore, Boyce must inherently include a video decoder in order to present recognizable display to the viewer as explained below. Further, because the output bitstream of is encoded according to the MPEG-2 standard, the decoder which correctly decodes this bitstream to produce recognizable images is, by definition, compliant with the MPEG-2 standard.

In response to the applicants apparent challenge of the official notice taken in claims 10, 11, 10 and 20, the reference Artieri has been provided to show support for the official notice. Also note that official notice is to be taken, without evidentiary support, in cases where the facts asserted are well known. See MPEP 2144.03. The applicant does not raise any additional arguments.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JEREMAIAH C. HUBER whose telephone number is (571)272-5248. The examiner can normally be reached on Mon-Fri 8:00 a.m. - 4:30 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mehrdad Dastouri can be reached on (571)272-7418. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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Examiner
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